

REMARKS

Claims 1-11, 21, 22 and 25-28 are pending in this application.

No claims have been amended by the present Amendment.

REJECTIONS UNDER 35 U.S.C. § 102

Kawase '332

Reconsideration is respectfully requested of the rejection of claims 1, 3-9 and 21 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,660,332 ("Kawase '332").

Applicants respectfully submit that Kawase '332 at least fails to disclose all of the elements of claim 1.

A rejection for anticipation under section 102 requires that the four corners of a single prior art document describe every element of the claimed invention, either expressly or inherently, such that a person of ordinary skill in the art could practice the invention without undue experimentation. In re Paulsen, 30 F.3d 1475, 1478-79, 31 U.S.P.Q.2d 1671, 1673 (Fed. Cir. 1994). "The identical invention must be shown in as complete detail as is contained in the . . . claim." Richardson v. Suzuki Motor Co., 868 F.2d 1226, 1236, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989); M.P.E.P. § 2131.

Claim 1, inter alia, recites:

a plurality of head units each formed in a corresponding row, wherein each head unit includes at least one head having spraying nozzles, and is shifted a horizontal distance from a previous head unit, wherein the spraying nozzles have a pitch between neighboring spraying nozzles, a multiple of the shift distance being substantially identical to the pitch, whereby the pitch is greater than the shift distance.

For example, referring to FIGS. 3-4 of Applicants' disclosure, the head units are shown as reference numerals 300-1 . . . 300-n, and the heads as 310-1, 310-2 . . . 310-(m-1), 310-(m) and 320-1, 320-2 . . . 320-(m-1), 320-(m). Each successive head unit is shifted from a previous head unit by a shift distance d , which is less than a pitch (e.g., 140 μm) between nozzles 400.

Kawase '332 Does Not Disclose "A Plurality Of Head Units Each Formed In A Corresponding Row"

The Examiner maintains that Kawase '332 discloses "a plurality of head units (ink-jet heads 22a-22k) forming a corresponding row". See March 8, 2006 Office Action at 2.

In contrast to the Examiner's contention, Kawase '332 discloses one inkjet head 22 that is moved to different positions (a) – (k). See Kawase '332 col. 13, lines 28-50. Kawase '332 repeatedly refers to a single inkjet head, not multiple inkjet heads formed in rows. Accordingly, Kawase '332 fails to disclose "a plurality of head units each formed in a corresponding row", as recited in claim 1.

For at least this reason, Kawase '332 does not anticipate claim 1.

Kawase '332 Fails To Disclose A Multiple Of The Shift Distance Being Substantially Identical To The Pitch, Whereby The Pitch Is Greater Than The Shift Distance

The Examiner maintains that Kawase '332 discloses a device that "is capable of shifting the plurality of head unit as desired, whereby a multiple of shift distance is capable of being identical to the pitch or the shift distance is less than the pitch". As the only support for this contention, the Examiner maintains that Kawase '332 discloses "a controller unit (CPU), controlling scanning directions and positions of the head unit, capable of controlling the shifting distance of each head unit as desired (to be less than

or equal or greater than the nozzle pitch) using appropriate programming languages.”
See March 8, 2006 Office Action at 2-8.

The Examiner has not met the initial burden of establishing a prima facie case of anticipation of this claim element. The Examiner has not established by convincing reasoning or evidence that the operation of the CPU of Kawase '332 anticipates the requirement that a multiple of the shift distance be substantially identical to the pitch, and that the pitch is greater than the shift distance.

Kawase '332 states that the CPU 69 “controls the operation of discharging the ink . . . at predetermined positions on the surface of the mother substrate”. Kawase '332 also states that the inkjet head 22 is moved in a first-scanning direction X and a second scanning direction Y. See Kawase '332, col. 11, lines 17-27 and lines 37-39.

First, Applicants reiterate that Kawase '332 does not disclose “a plurality of head units”, and, therefore, also does not disclose “each head unit . . . shifted a horizontal distance from a previous head unit”. In addition, nowhere in Kawase '332 does it state that the CPU moves the inkjet head 22 such that a multiple of the shift distance is substantially identical to the pitch between nozzles. Kawase '332 does not appear to include any statements outlining a relationship between shift distance and nozzle pitch. Moreover, it appears that every visual reference to a difference from one position of the head unit 22 to another position of the head unit 22 shows a “shift” of the head unit 22 which is greater than a pitch between nozzles, not less than a pitch between nozzles. See, e.g., Kawase '332, FIGS. 1-4.

Furthermore, the Examiner’s argument that the CPU is “capable of controlling the shifting distance of each head unit as desired (to be less than or equal or greater than

the nozzle pitch)" is based entirely on speculation, as there is no disclosure in Kawase '332 to support same.

Accordingly, Applicants respectfully submit that Kawase '332, at the very least, does not anticipate (1) a plurality of head units each formed in a corresponding row; and (2) a multiple of the shift distance that is substantially identical to the pitch, whereby the pitch is greater than the shift distance, as recited in claim 1.

Therefore, Applicants respectfully submit that claim 1 is not anticipated by Kawase '332. In addition, for at least the reason that claims 3-9 and 21 depend from claim 1, claims 3-9 and 21 are also not anticipated by the cited reference.

As such, Applicants respectfully request that the Examiner withdraw the rejection of claims 1, 3-9 and 21 under 35 U.S.C. § 102(b) and that claims 1, 3-9 and 21 are in condition for allowance.

Kawase '613

Reconsideration is respectfully requested of the rejection of claims 1-9, 21-22 and 25-28 under 35 U.S.C. § 102(a) as being anticipated by U.S. Patent Application Publication No. US2003/0186613 ("Kawase '613").

Applicants respectfully submit that Kawase '613 at least fails to disclose all of the elements of claims 1 and 22.

As stated above, claim 1, inter alia, recites a multiple of the shift distance between head units that is substantially identical to the pitch, whereby the pitch is greater than the shift distance.

Claim 22, inter alia, recites first to nth head units respectively disposed in first to nth rows, wherein n is an integer greater than 1, and a pitch between neighboring

spraying nozzles that is substantially identical to n times a predetermined shift distance from one head unit to a next head unit. For example, if a pitch between nozzles is 140 μm , and there are ten head units in rows 1 through 10 ($n=10$), then the shift distance between each head unit is 14 μm ($n \times d = 10 \times 14 = 140 \mu\text{m}$). See, e.g., Applicants' disclosure, page 12, lines 21-23; FIGS. 4 and 6.

Kawase '613 Fails To Disclose A Multiple Of The Shift Distance Being Substantially Identical To The Pitch, And A Pitch Between Neighboring Spraying Nozzles That Is Substantially Identical To n Times A Predetermined Shift Distance

Like with Kawase '332, the Examiner maintains that Kawase '613 discloses a device that "is capable of shifting the plurality of head unit as desired, whereby a multiple of shift distance is capable of being identical to the pitch or the shift distance is less than the pitch". As stated above, as the only support for this contention, the Examiner maintains that Kawase '613 discloses "a controller unit (CPU), controlling scanning directions and positions of the head unit, capable of controlling the shifting distance of each head unit as desired (to be less than or equal or greater than the nozzle pitch) using appropriate programming languages." See March 8, 2006 Office Action at 2-8.

The Examiner has not met the initial burden of establishing a prima facie case of anticipation of these claim elements. The Examiner has not established by convincing reasoning or evidence that the operation of the CPU of Kawase '613 anticipates the requirement that a multiple of the shift distance be substantially identical to the pitch, and that the pitch be equal to n times the shift distance.

Kawase '613 states that the CPU 69 "performs control to eject inks in predetermined positions on the motherboard". Kawase '613 also states that the CPU

69 includes a drawing processing section for moving the head at a predetermined speed in a main scan direction X and a sub-scan control processing section for executing commands to shift the motherboard in a sub-scan direction Y. See Kawase '613, ¶¶ 0219 and 0223.

As evidenced from Kawase '613's description, the CPU does not control placement of head units with respect to each other. Instead, the CPU controls movement of the head units and the motherboard during ink ejection. Indeed, the motherboard, not the head unit, is shifted in the Y-direction.

In addition, nowhere in Kawase '613 does it state that the CPU moves a droplet ejection unit (25A-25C) such that a multiple of the shift distance, or n times the shift distance, is substantially identical to the pitch between nozzles. Kawase '613 does not appear to include any statements outlining a relationship between shift distance and nozzle pitch. Moreover, it appears that every visual reference to a difference between ejection start points of droplet ejection units (25A-25C) shows a difference which is greater than a pitch between nozzles, not less than a pitch between nozzles. See, e.g., Kawase '613, FIG. 9 (references P21, P22 and P23).

Indeed, a stated objective of Kawase '613 is to avoid overlap at ejection start and end points. See, e.g., Kawase '613, ¶¶ 0131-0132. Avoidance of overlap is obtained by the shifted configurations, shown in, for example, Figs. 3, 4 and 9 of Kawase '613. There is no motivation to have pitch between nozzles that is greater than the shift distance (or n times the shift distance) because such a configuration results in the overlap that Kawase '613 seeks to avoid. Cf. Applicants' disclosure, page 12, lines 19-20 (seeking overlap of droplets).

Lastly, as stated above, the Examiner's argument that the CPU is "capable of controlling the shifting distance of each head unit as desired (to be less than or equal or greater than the nozzle pitch)" is based entirely on speculation, as there is no disclosure in Kawase '613 to support same.

Accordingly, Applicants respectfully submit that Kawase '613, at the very least, does not anticipate (1) a multiple of the shift distance that is substantially identical to the pitch, whereby the pitch is greater than the shift distance, as recited in claim 1; and (2) a pitch between neighboring spraying nozzles that is substantially identical to n times a predetermined shift distance, as recited in claim 22.

Therefore, Applicants respectfully submit that claims 1 and 22 are not anticipated by Kawase '613. In addition, for at least the reason that claims 2-9 and 21 depend from claim 1, and claims 25-28 depend from claim 22, claims 2-9, 21 and 25-28 are also not anticipated by the cited reference.

As such, Applicants respectfully request that the Examiner withdraw the rejection of claims 1-9, 21-22 and 25-28 under 35 U.S.C. § 102(a) and that claims 1-9, 21-22 and 25-28 are in condition for allowance.

REJECTIONS UNDER 35 U.S.C. § 103(a)

Reconsideration is respectfully requested of the rejection of claims 10-11 under 35 U.S.C. § 103(a) as being unpatentable over (1) Kawase '332 as applied to claim 9 and further in view of European Patent Application Pub. No. EP 0754553 ("EP '553); and (2) Kawase '613 as applied to claim 9 and further in view of EP '553.

Applicants respectfully submit that Kawase '332 when taken alone or in combination with EP '553, and Kawase '613 when taken alone or in combination with

EP '553, fail to teach or suggest a pitch between neighboring spraying nozzles that is substantially identical to a multiple of the shift distance, whereby the pitch is greater than the shift distance, as recited in claim 1.

As stated above, neither Kawase '332 nor Kawase '613 teach this feature. Further, the addition of EP '553 does not render the claimed embodiment obvious. See Applicants' December 15, 2005 Amendment, at 7-8 (discussing EP'553 and its failure to disclose the claimed features).

Therefore, it is respectfully submitted that the cited references, when taken alone or in combination, do not disclose or suggest the recited features of claim 1. Accordingly, it would not have been obvious to modify Kawase '332, as applied to claim 9 and further in view of EP '553, or to modify Kawase '613, as applied to claim 9 and further in view of EP '553, to develop the embodiment recited in claim 1.

As such, Applicants respectfully submit that claim 1 is patentable over (1) Kawase '332 as applied to claim 9 and further in view of EP '553; and (2) Kawase '613 as applied to claim 9 and further in view of EP '553.

For at least the reason that claims 10-11 depend from claim 1, claims 10-11 are also submitted to be patentably distinct over the cited references.

Therefore, Applicants respectfully request that the Examiner withdraw the rejections of claims 10-11 under 35 U.S.C. § 103(a) and that claims 10-11 are in condition for allowance.


DEPENDENT CLAIMS

Applicants have not independently addressed the rejections of all the dependent claims because Applicants submit that, for at least similar reasons as why the

independent claims from which the dependent claims depend are believed allowable as discussed, supra, the dependent claims are also allowable. Applicants however, reserve the right to address any individual rejections of the dependent claims should such be necessary or appropriate.

An early and favorable reconsideration is earnestly solicited. If the Examiner has any further questions or comments, the Examiner may telephone Applicants' Attorney to reach a prompt disposition of this application.

Respectfully submitted,



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